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The Files

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MVTR Tests of Burial Packaging Materials by NBS

1. The National Bureau of Standards was requested to make water-vapor permeance determinations of several materials used, or contemplated for use, as burial packaging materials. Test results follow:

	Material	Grams/100 sq. in./ 24 hours
a.	3.0 mm Gumni	.11
b.	1.5 mm Gumni	.23
c.	Rubber, Ordnance	.25
d.	Rubber, Single Side Vulcanized	.27
e.	Rubber, Goodyear	.19
f.	KKL-7 Film .005" (Type B)	.05
g.	Reinforced Plastic, modified Epoxy Coating	.04

2. Of particular interest to OC-E are the latter two materials, f. and g., above.

3. The Kellogg Corp. suppliers for the dispersion powders for extruded KKL-7 film state that the MVTR for .002" thick film is .02 grams (same test) and for .003" thick film and greater is .00. Consequently, one purpose for going to the Bureau of Standards was to determine the MVTR of KKL-7 .005" film when brought to two significant figures and a figure like .008 grams was visualized. Type A film was initially requisitioned because of the fabricator's (Visking Corp, Indiana) statement on MVTR for that film. With the unsuccessful employment of Type A film in the Field the supplier was again contracted for a statement on the MVTR of Type B film. The Visking Corp. could make no statement as to the MVTR of

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Type B film, but was of the opinion that the two films possessed identical MVTR characteristics. While the .05 gram figure is a disappointment when compared with that claimed by the manufacturer, it is not intended to imply that the film is unsatisfactory as a burial packaging material. As revealed in Table I, Type B KEL-F film has a four to five times better MVTR characteristic than materials many times it's thickness and in addition is chemically inert, heat sealable, stable over wide temperature ranges, and non-toxic (where food and medicine are a consideration).

4. One objection to the KEL-F film is the high cost. Another film which has some possibilities is SURAN, manufactured by the Dow Chemical Company. This vinylidene chloride plastic is low cost, possesses excellent chemical resistance at room temperatures (resistance decreases with increasing temperature) and has a MVTR of .20 grams (identical test) for a .001" film thickness. SURAN is being investigated on the assumption that the MVTR of .005" thick film will possess a MVTR at least equal to type B KEL-F film. At the present time it is questionable whether films greater than .001" are manufactured.

5. The .04 gram figure for the container coating (EC-4, EC-5, and EC-101) is approximately what was expected. The polysulfide modified epoxy resin coating figure sought being .076 grams. That this figure was exceeded is attributed to the heavy coating (.005") required by the specifications and water-vapor permeance of the laminated fiberglass case itself.

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